## ART. XIV.—*Statistical Report of* 494 *Cases of Diseases of the Ear.* By D. B. ST. JOHN ROOSA, M.D., Clinical Professor of the Diseases of the Eye and Ear in the University of New York, Surgeon to the Manhattan and Brooklyn Eye and Ear Hospitals, &c. (Read before the New York State Medical Society.)

SOME months since I presented to the profession, at a meeting of the New York Academy of Medicine, and in the *New York Medical Journal*,[1] the statistics of five hundred cases of aural disease observed in private practice. Since that time I have had the opportunity of observing and treating about the same number, under the same circumstances, besides a much larger number at the Brooklyn and the Manhattan Eye and Ear Hospitals.

In view of the scepticism existing even in the highest ranks of the profession, as to the necessity of treating diseases of the ear, I believe I can do no better service to the cause of truth than that rendered by the presentation of such unadorned facts as are contained in a careful, although necessarily superficial, report of a number of affections of the organ of hearing, as they were seen in private practice in a period of twenty-eight consecutive months.

As evidence of the sceptical state of the profession in regard to aural therapeutics, I may adduce the Boylston prize question for 1870—" Criticisms on the recent opinion of a medical writer that the less serious diseases of the ear may be successfully treated by a well-qualified general practitioner, and the more serious affections by none"—and the fact that distinguished practitioners have, even within a few months, seriously advised patients to stop a course of treatment for suppuration in the ears, on the general ground that it was not best to " meddle with the ear," and this without any examination of the cases, and with an expressed confidence in the practitioner who had charge of them.

The cases herewith presented were taken from my note-book without selection, as they occurred. Those only are classified as " cured," in which the hearing was restored to a normal condition, as tested by the watch, the tuning-fork, and ordinary conversation ; and when the membrana tympani, if previously ulcerated, has been healed. Judged by the ordinary use of the term *cured*, this standard is too high. It is higher, for example, than that in ophthalmic practice, where the removal of a cataractous lens—so that the patient gets sight enough to read coarse print—is called a cure of the cataract, although the vision obtained may be only two-thirds of that enjoyed by a person who has never had cataract. In the same manner we speak of *curing* a bone affected with necrosis, by removing the diseased portion, even if considerable deformity be left. If a patient who has suffered for years from an ulcerative process in the cavity of the tympanum, recovers to such an extent that the ulcer is healed, and the hearing power improved, he would be said to be cured, under a standard no higher than that usually adopted in medical statistics; but I have preferred in this table, and in the one previously presented, to put them under the head of "much improved."

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[1] Vol. ix., No. 5.

A large proportion of the 494 cases are classified as "unknown." This term means that these were either cases of persons coming from a distance, who were unable to return after the consultation, or cases which I saw in consultation with other practitioners, from whom I have never heard the result of the treatment agreed upon. Some of these, at least, were undoubtedly cured or improved, or I should have heard from them again.

Those cases classified as "unimproved" embrace not only such as were not benefited after some treatment more or less thorough, but also such as were pronounced entirely unworthy of treatment—as being hopeless; for instance, cases as incurable as complete leucoma of the cornea, or advanced atrophy of the optic nerve.

There were fourteen cases of furuncular or circumscribed inflammation of the external auditory canal; eight were cured, two were much improved when last seen, and four were seen but once.

The treatment consisted of a free incision, the use of warm water through Clarke's ear-douche, and the administration of iron and quinia when there was some general debility, as there often was.

Of diffuse suppurative inflammation of the external auditory canal, the so-called "otorrhœa externa," there were only six cases. Three of these were cured; two were much improved; while the result in one case is unknown to me. I am inclined to think that it is a fact not generally appreciated, that in the most cases of chronic suppuration in the ear, the primary seat of the disease is the cavity of the tympanum, and not the external auditory canal. One of the three cases that were cured was that of a young lady, who had suffered from a "discharge from the ear" for some two years. Her hearing was so much impaired that she could not hear ordinary conversation; there was an offensive and profuse discharge from the auditory canals and outer surface of the membrana tympani, and her general condition was much affected in consequence of the depression of spirits induced by her disease. She had been frequently, and in some instances persistently, prescribed for, but she never had been *treated;* that is to say, her physicians had been content with advising the use of a syringe, and astringents, alteratives, and counter-irritants, while they had never given their personal attention to the cleansing of the ears, and the application of the appropriate agents to the diseased integument of the external auditory canal and outer surface of the membrana tympani.

Now I hold that it is just as impossible for a patient to cleanse his own ear, if there be much suppurative inflammation affecting it, as to cauterize his own palpebral conjunctiva, and I feel persuaded that many of the failures to check and cure an ulceration of the ear result from the want of the personal care of the attendant, who has prescribed the proper means of treatment, but who has been content with ordering, what he should have done.

The treatment employed in these cases was simply the daily cleansing of the parts by means of a syringe and warm water, cotton on an appropriate holder, a camel's-hair brush, or the like, with the subsequent application of weak astringents in weak solutions, such as the sulphate of zinc, or the nitrate of silver, in a solution of the strength of forty grains to the ounce. This latter application was made with a cotton-holder, but it was not poured in the ear, as were the weaker solutions of zinc and alum. During the cleansing process the ear was frequently examined by means of Troltsch's method, the use of the concave mirror, and ordinary daylight.

There were three cases of eczema of the auricle and auditory canal, all of which were cured by a method of treatment similar to that just detailed.

There were four cases in which the microscope showed that the vegetable fungus, known as aspergillus, was growing in the external auditory canal and on the surface of the membrana tympani.

Since the publication of Schwartz's[1] case, and Wreden's brochure, containing a number of cases, it has been found that many obstinate cases of what were formerly supposed to be instances of diffuse inflammation of the external auditory canal, or of impacted cerumen, were really caused by the growth of this fungus. It may be considered as a kind of mould that forms on damp walls, and in other moist places, and which may enter the ear, especially if the ground be prepared for it by a precedent inflammation, that has abraded the integument.

The pain, vertigo, and tinnitus aurium, produced by the growth of this fungus, are very considerable; but these symptoms are the same with those in several other affections of the ear. The microscope is, therefore, the only means of positively determining the exact nature of the affection, although the objective appearances to the naked eye will assist very much in the diagnosis. In a communication which appeared in the *American Journal of the Medical Sciences* (January, 1870), by Dr. Wm. B. Lewis and myself, a full account of two of the cases embraced in this table is published, with drawings by Dr. Lewis of microscopical appearances.

The treatment of this affection is very simple; but it is apt to be tedious. The fungus should be thoroughly removed by the forceps as fast as it is produced, used under a good illumination; after this the part should be kept clean by the frequent use of the syringe and warm water, which latter agent I have found quite as useful as to the so-called parasiticides.

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[1] Archiv für Ohrenheilkunde, Bd. 2, p. 5.

There were thirty cases of inspissated cerumen, all of which were cured by the removal of the hardened secretion, by means of the syringe and warm water. Impacted wax often occurs, as we all know, in connection with chronic inflammation of the mucous membrane lining the cavity of the tympanum, if not in consequence of it; but in such cases it is merely a symptom, and not a disease. When hardened wax is removed from such ears, the patients experience scarcely any benefit. The same negative effect is produced by the removal of hardened wax from the remains of an ulcerated membrana tympani. I have, therefore, omitted these cases in the classification, and have classed together the true, uncomplicated cases.

One of these cases was somewhat remarkable, from the fact that the hardened secretion had remained in the ear, and very much impaired the hearing for six years.

There was one case in which I was called to remove a foreign body from the auditory canal, which was not to be found. The mother stated positively that the child had placed a carob bean (Johannis rod) in the ear, and the physician who asked my aid assured me that he could see it and feel it, and that he had made several attempts to remove it, one while the child was under the influence of chloroform, but without success. The child was so much frightened by the previous attempts at the removal of the supposed foreign body, that I was unable to make a thorough examination until the child was anæsthetized, when I satisfied my colleague and myself that there was no foreign body in the ear, and that what had been supposed to be so was a projection of the bony auditory canal. The patient, being let alone, did well, and the ulceration in the membrana tympani, caused by the manipulations, was completely checked.

There were two cases in which bodies in the external auditory canal were promptly removed by the use of the syringe and warm water.

There were twelve cases of acute catarrh of the middle ear, affecting one side, attended by the usual symptoms, redness of the membrana tympani, pharyngitis, impairment of hearing, severe pain, tinnitus, and a sense of fulness in the ear. The treatment consisted in the use of leeches, warm water in the auditory canal, gargles, diaphoretics, and opium. In two cases paracentesis of the membrana tympani was performed, with marked and instantaneous benefit.

Eleven cases were cured, and one died from the extension of the affection to the meninges of the brain, probably through the mastoid process. This case has already been reported.[1] The membrana tympani did not suppurate, but the affection localized itself in the mastoid portion of the middle ear. Trephining of this process was resorted to, but the patient died in a comatose condition.

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[1] Medical Record, Dec. 1, 1870. Transactions of the American Otological Society, third year.

There were thirteen cases of acute catarrh of the middle ear, occurring on both sides. Ten of these were cured, while the result of the treatment advised in the three remaining cases is unknown to me.

Two of these inflammations were caused by the use of the so-called Thudichum's nasal douche, for the relief of naso-pharyngeal catarrh. I do not now prescribe the use of this instrument, unless with the greatest circumspection, and after having fully explained the danger connected with its use. The danger is probably from the entrance of fluid through the Eustachian tubes into the cavity of the tympanum and mastoid cells. One such accident will not usually produce more than momentary uneasiness, but a repetition of the accident, even if the water be warm, is not without danger. I have observed two cases where the appliance, used under my own direction, has induced suppuration of the drum membrane. I have also seen several other cases, some of which were reported by Dr. C. I. Pardee in the *Medical Record*, in which acute inflammation of the middle ear was caused by the use of the douche. In one case, elsewhere reported in full,[1] pyæmia resulted from the aural suppuration, and the patient nearly lost his life. I now rely upon the posterior nares syringe, a nebulizer, and gargles, for the purpose of cleansing and medicating the posterior nares.

In all these cases of inflammation of the middle ear, the Eustachian catheter, and Politzer's method of inflating the membrana tympani, were employed as soon as the very acute symptoms had been subdued. Without these methods of restoring the communication between the pharynx and the middle ear, the hearing power of the patients would, I think, have remained permanently impaired. They would, probably, have passed over into that class of cases already so disproportionately large, placed under the head of "chronic aural catarrh."

Of the whole number of cases in this table, 269, or a little more than fifty per cent., were diagnosticated as chronic inflammation of the mucous membrane lining the middle ear. This general heading includes all varieties of this affection. Some of them were cases where the inflammation was chiefly seated in the Eustachian tube, the "tubal catarrh" of many writers, as well as those hopeless ones in which the abnormal appearances on the membrana tympani, and in the pharynx, were so little pronounced, that, under our old ideas, they would have been classified as cases of "nervous deafness," but cases in which the tuning-fork enables us to exclude the labyrinth from being the primary seat of the disease. In fact, the classification is much too general, but it is as complete as the notes taken amidst the demands of practice will allow. The results of the treatment are not flattering. They read like those of phthisis pulmonalis. Their publication will do good, however, if they serve to convince us that inflammations of the middle ear must be treated in their incipiency, if we desire good results.

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[1] Archives of Ophthalmology and Otology, No. I.

The fact that the statistics are not as favourable as those of Schwartze, of Halle, in Germany, who is in the habit of publishing statistical tables such as mine, I cannot fully explain. A German practitioner in New York, who has seen much of aural disease, both in Germany and America, informs me that he considers chronic aural catarrh more intractable with us than in his native country.

Nearly all of these 269 cases had been affected for years, and most of them had never been treated in any efficient local manner. The causes of many of them may be found in the neglected "earaches" of childhood, or in the coryzas of more mature years, while a few seemed to have no apparent cause, and having once begun, advanced insidiously, but steadily, to pathological changes which rendered all hopes of recovering the hearing futile.

The number of these cases will undoubtedly be lessened in the next generation, now that a suppurating membrana tympani, and one of the greatest tortures that can be experienced—a pain in the ear—are being thought worthy of prompt attention.

The results of these cases were that 12 were cured, 32 were much improved, 55 were improved, 75 were unimproved, and 95 were seen but once.

The treatment employed was chiefly local, and consisted in the use of gargles, of the Eustachian catheter, through which air, vapour of water and of iodine, solutions of sulphate of zinc and alum, were passed. Politzer's method with the bulb attachment, in which various vapours were generated, *e. g.* chloroform and tincture of iodine, as well as applications to the mouths of the Eustachian tubes and posterior pharyngeal space, were also employed. The general condition was always carefully considered, and attempts were made, when necessary, to bring the patient into the most favourable sanitary conditions.

There were 17 cases of acute suppuration in the middle ear; 15 affected one ear only; 8 of these were cured; 5 were improved; and in 4 cases the result is unknown to me. In one instance there was periostitis of the mastoid, and several free incisions down to the bone (Wilde) were required, to prevent the advance of the inflammation to the meninges of the brain.

There were 93 cases of chronic suppuration in the middle ear. The most of these were of years' standing, and the result of naso-pharyngeal inflammation occurring during scarlet fever or measles. My experience leads me to the belief that physicians would prevent the occurrence of many of these cases, by devoting a little of the time urgently demanded by the general symptoms, to the condition of the ear. If means were promptly taken to quiet an "earache" by the instillation of warm water or the application of leeches, and if an ulcerative process were at once checked by thorough cleansing of the auditory canal and cavity of the tympanum, with the subsequent use of a weak astringent solution, many of the deplorable consequences classed under the head of "otorrhœa" could be prevented.

Six of these cases of chronic ulceration were cured; 27 were much improved (perhaps some of the subjects considered themselves cured, since the ulceration was stopped, and the hearing much improved). In 26 cases there was improvement, 7 were unimproved, and 27 were seen but once.

Polypi were removed in some of the cases, either by Wilde's snare or Hinton's forceps.

Thirteen were cases of primary disease of the labyrinth, as shown by the tuning-fork. Among the 8 patients affected with chronic aural catarrh, there were some in whom the labyrinth was involved, but secondarily; 10 were considered as hopeless cases, and were not treated. In 3 some encouragement was given, but the patients were not treated.

There were 14 deaf-mutes, chiefly from affection of the middle ear occurring at so early a period that speech could not be acquired by imitation.

There were 3 cases of sounds in the ear, without impairment of structure or function, as far as could be determined. One was an objective sound, being heard by myself as well as the patient as a crackling noise, seeming to come from the mouth of the Eustachian tube, and to be due to abnormal muscular action. I am sorry to say that I saw this case but once, and then for a very short time.

494 *Cases of Diseases of the Ear seen in private practice.*

| | Cured. | Much improved. | Improved. | Unimproved. | Unknown. | Died. | Total. |
|---|---|---|---|---|---|---|---|
| EXTERNAL EAR. | | | | | | | |
| Furuncular inflammat'n; external auditory canal | 8 | 2 | .. | .. | 4 | .. | 14 |
| Diffuse inflammation | 3 | 2 | .. | 1 | .. | .. | 6 |
| Eczema | 3 | .. | .. | .. | .. | .. | 3 |
| Aspergillus | 3 | 1 | .. | .. | .. | .. | 4 |
| Inspissated cerumen | 30 | .. | .. | .. | .. | .. | 30 |
| Supposed foreign body | 1 | .. | .. | .. | .. | .. | 1 |
| Foreign body | 2 | .. | .. | .. | .. | .. | 2 |
| MIDDLE EAR. | | | | | | | |
| Acute catarrh— | | | | | | | |
| One side | 11 | .. | .. | .. | .. | 1 | 12 |
| Both sides | 10 | .. | .. | .. | 3 | .. | 13 |
| Chronic catarrh— | | | | | | | |
| One side | 2 | 3 | 5 | 2 | 3 | .. | 15 |
| Both sides | 10 | 29 | 50 | 73 | 92 | .. | 254 |
| Acute suppuration— | | | | | | | |
| One side | 7 | .. | 3 | .. | 5 | .. | 15 |
| Both sides | 1 | 1 | .. | .. | .. | .. | 2 |
| Chronic suppuration— | | | | | | | |
| One side | 4 | 12 | 13 | .. | 11 | .. | 40 |
| Both sides | 2 | 15 | 13 | 7 | 16 | .. | 53 |
| INTERNAL EAR. | | | | | | | |
| Primary disease labyrinth— | | | | | | | |
| One side | .. | .. | .. | 7 | 2 | .. | 9 |
| Both sides | .. | .. | .. | 3 | 1 | .. | 4 |
| Deaf-mutes | .. | .. | .. | 14 | .. | .. | 14 |
| Tinnitus aurium; cause unknown | .. | .. | .. | 3 | .. | .. | 3 |
| | 97 | 65 | 84 | 110 | 137 | 1 | 494 |